

XX. Channel Protection

- a. The following Channel Protection requirements apply to both on-site and off-site channels except in cases where the stormwater peak discharge rate(s) from the development project for a 24-hour, two-year storm event is less than or equal to one percent of the cumulative discharge considering the cumulative flows in the natural channel resulting from the development project and upstream areas based on existing land uses.
- b. If discharging to a natural channel, the natural channel must be shown to accommodate the 24-hour, one-year storm flow from the site considering the cumulative flows in the natural channel resulting from the development project and upstream areas based on proposed land uses. *(Guidance is needed explaining what needs to be shown to satisfy this – what does accommodate mean? Do we only specify in terms of velocity in this section since the Receiving System Capacity section specifies capacity? What is considered a natural channel? A sketch should be included in the guidance. Proposed land uses should be in accordance with the current local Comprehensive Plan or other locally approved land use plan.)*

If the natural channel will not accommodate the 24-hour, one-year storm flow from the site considering the cumulative flows in the natural channel resulting from the development project and upstream areas based on proposed land uses, the development project must

- i. Improve the natural channel using natural channel design considering the cumulative flows in the channel resulting from the development project and upstream areas based on proposed land uses, or *(Natural channel design would need to be defined/clarified.)*
- ii. Improve the natural channel to accommodate the velocity associated with the 24-hour, two-year storm flow from the site considering the cumulative flows in the channel resulting from the development project and upstream areas based on proposed land uses, or
- iii. Provide detention of development site stormwater runoff based on the Rolband Forested Principle *(Conduct the energy balance method back to the forested condition).*

Required off-site improvements can be addressed by providing a pro-rata share payment for the development project's share of the required off-site improvements to the channel if 1) allowed by the locality and 2) pro-rata share payments are a component of a locally adopted comprehensive watershed management program.

- c. If discharging to a man-made channel, the channel must be shown to accommodate the velocity associated with the 24-hour, two-year storm flow from the site considering the cumulative flows in the channel resulting from the development project and upstream areas based on proposed land uses.

If the man-made channel will not accommodate the velocity associated with the 24-hour, two-year storm flow from the site considering the cumulative flows in the natural channel resulting from the development project and upstream areas based on proposed land uses, the development project must

- i. Improve the channel using natural channel design considering the cumulative flows in the channel resulting from the development project and upstream areas

based on proposed land uses, or *(may result in the natural restoration of a previously altered stream)*

- ii. Improve the channel to accommodate the velocity associated with the 24-hour, two-year storm flow from the site considering the cumulative flows in the channel resulting from the development project and upstream areas based on proposed land uses, or
- iii. Provide detention of development site stormwater runoff based on the Rolband Pre-Development Principle *(Conduct the energy balance method back to the pre-developed condition – even this is an improvement considering the reduction in Q that will occur given the increase in volume.)*

Required off-site improvements can be addressed by providing a pro-rata share payment for the development project's share of the required off-site improvements to the channel if 1) allowed by the locality and 2) pro-rata share payments are a component of a locally adopted comprehensive watershed management program.

XXI. Receiving System Capacity

- a. The following Receiving System Capacity requirements apply to both on-site and off-site receiving systems except in cases where the stormwater peak discharge rate(s) from the development project for a 24-hour, ten-year storm event is less than or equal to one percent of the cumulative discharge considering the cumulative flows in the natural channel resulting from the development project and upstream areas based on existing land uses.
- b. Receiving systems must be shown to have the capacity for the peak discharge associated with the 24-hour, ten-year storm flow considering the cumulative flows in the receiving system resulting from the development project and upstream areas based on proposed land uses. *(A definition of receiving system is needed – channel, jurisdictional areas, floodplain, pipe, etc. Could something like a Stormwater Conveyance Buffer be created as part of the receiving system that would be very much like a riparian buffer but would contain the storm flow?)*

If the receiving system does not have the capacity for the peak discharge associated with the 24-hour, ten-year storm flow site considering the cumulative flows in the receiving system resulting from the development project and upstream areas based on proposed land uses, the development project must

- i. Improve the receiving system to provide capacity for the peak discharge associated with the 24-hour, ten-year storm flow from the site considering the cumulative flows in the receiving system resulting from the development project and upstream areas based on proposed land uses, or
- ii. Provide detention of development site stormwater runoff based on the Rolband Pre-Development Principle *(Conduct the energy balance method back to the pre-developed condition).*

Required off-site improvements can be addressed by providing a pro-rata share payment for the development project's share of the required off-site improvements to the channel if 1) allowed by the locality and 2) pro-rata share payments are a component of a locally adopted comprehensive watershed management program. *(Pro-*

rata payment for capacity deficiencies should be applicable only in select cases such as when there is an identified locality-conducted project to contribute to that address the deficiencies)

XXII. Flooding Control

- a. The following Flooding Control requirements apply to both on-site and off-site receiving systems except in cases where the stormwater peak discharge rate(s) from the development project for a 24-hour, ten-year storm event is less than or equal to one percent of the cumulative discharge considering the cumulative flows in the natural channel resulting from the development project and upstream areas based on existing land uses.
- b. Receiving systems must be shown to have the capacity for the peak discharge associated with the 24-hour, ten-year storm flow considering the cumulative flows in the receiving system resulting from the development project and upstream areas based on proposed land uses. *(A definition of receiving system is needed – channel, jurisdictional areas, floodplain, pipe, Stormwater Conveyance Buffer, etc. and the locality should have the flexibility to establish the local definition)*

If the receiving system does not have the capacity for the peak discharge associated with the 24-hour, ten-year storm flow site considering the cumulative flows in the receiving system resulting from the development project and upstream areas based on proposed land uses, the development project must

- i. Improve the receiving system to provide capacity for the peak discharge associated with the 24-hour, ten-year storm flow from the site considering the cumulative flows in the receiving system resulting from the development project and upstream areas based on proposed land uses, or
- ii. Provide detention of development site stormwater runoff based on the Rolband Pre-Development Principle *(Conduct the energy balance method back to the pre-developed condition).*

Required off-site improvements can be addressed by providing a pro-rata share payment for the development project's share of the required off-site improvements to the channel if 1) allowed by the locality and 2) pro-rata share payments are a component of a locally adopted comprehensive watershed management program. *(Pro-rata payment for flooding concerns should be applicable only in select cases such as when there is an identified locality-conducted project to contribute to that address the deficiencies)*